(FILE 'HOME' ENTERED AT 14:10:25 ON 14 MAR 2003)

FILE 'MEDLINE, BIOSIS, CAPLUS, EMBASE, LIFESCI' ENTERED AT 14:10:53 ON 14 MAR 2003

L1	3643	S UBIQUITIN (A) LIGASE
L2	53	S L1 AND KNOCKOUT
L3	32	DUP REM L2 (21 DUPLICATES REMOVED)
L4	5449	S L1 OR (UBIQUITIN (A) PROTEIN (A) LIGASE)
L5	1272	S L4 AND MUTANT
L6	403	DUP REM L5 (869 DUPLICATES REMOVED)
L7	6	S L6 AND UBR1

L3 ANSWER 12 OF 32 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE 5
AN 2003:129383 BIOSIS
DN PREV200300129383
TI Behavioral characterization of mice lacking the **ubiquitin ligase** UBR1 of the N-End rule pathway.
AU Balogh, S. A. (1); McDowell, C. S.; Denenberg, V. H.
CS (1) Institute for Behavioral Genetics, University of Colorado, Boulder, CO, 80309-0447, USA: baloghs@colorado.edu USA
SO Genes Brain and Behavior, (November 2002, 2002) Vol. 1, No. 4, pp. 223-229. print.
ISSN: 1601-1848.
DT Article
LA English
AB The N-end rule pathway, a subset of the ubiquitin pathway, relates the in vivo half-life of a protein to the identity of its N-terminal residue. Mice lacking NTAN1, a component of the N-end rule pathway, showed altered learning and memory, and socially conditioned behavioral alteration (Balogh, Kwon, & Denenberg 1999, 2000; Kwon, Balogh et al. 2000; Balogh et al. 2001). Mice lacking UBR1 (E3alpha), one of at least three recognition components of the N-end rule pathway, are viable and outwardly normal. Here we describe behavioral characterizations of UBR1 **knockout** (UBR1-/-) mice. Compared to congenic littermates, UBR1-/- mice exhibited less spontaneous activity in an open field and took longer to locate the hidden platform during eight-week Morris water maze retention. In contrast, they performed better in horizontal-vertical discrimination and Lashley III maze testing. No statistically significant differences in inhibitory learning were observed. With the exception of enhanced Lashley III maze performance, these data parallel findings with NTAN1-/- mice lacking the upstream component of UBR1. These results suggest that, like NTAN1, UBR1 is involved in learning and memory.

L3 ANSWER 18 OF 32 MEDLINE DUPLICATE 6
AN 2001640058 MEDLINE
DN 21548397 PubMed ID: 11689692
TI Construction and analysis of mouse strains lacking the **ubiquitin ligase** UBR1 (E3alpha) of the N-end rule pathway.
AU Kwon Y T; Xia Z; Davydov I V; Lecker S H; Varshavsky A
CS Division of Biology, California Institute of Technology, Pasadena, California 91125, USA.
NC DK39520 (NIDDK)
GM31530 (NIGMS)
SO MOLECULAR AND CELLULAR BIOLOGY, (2001 Dec) 21 (23) 8007-21.
Journal code: 8109087. ISSN: 0270-7306.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200112
ED Entered STN: 20011107
Last Updated on STN: 20021217
Entered Medline: 20011205
AB The N-end rule relates the in vivo half-life of a protein to the identity of its N-terminal residue. In the yeast Saccharomyces cerevisiae, the UBR1-encoded **ubiquitin ligase** (E3) of the N-end rule pathway mediates the targeting of substrate proteins in part through binding to their destabilizing N-terminal residues. The functions of the yeast N-end rule pathway include fidelity of chromosome segregation and the regulation of peptide import. Our previous work described the cloning of cDNA and a gene encoding the 200-kDa mouse UBR1 (E3alpha). Here we show that mouse UBR1, in the presence of a cognate mouse ubiquitin-conjugating (E2) enzyme, can rescue the N-end rule pathway in ubr1Delta S. cerevisiae. We also constructed UBR1(-/-) mouse strains that lacked the UBR1 protein.

UBR1(-/-) mice were viable and fertile but weighed significantly less than congenic +/+ mice. The decreased mass of UBR1(-/-) mice stemmed at least in part from smaller amounts of the skeletal muscle and adipose tissues. The skeletal muscle of UBR1(-/-) mice apparently lacked the N-end rule pathway and exhibited abnormal regulation of fatty acid synthase upon starvation. By contrast, and despite the absence of the UBR1 protein, UBR1(-/-) fibroblasts contained the N-end rule pathway. Thus, UBR1(-/-) mice are mosaics in regard to the activity of this pathway, owing to differential expression of proteins that can substitute for the **ubiquitin ligase** UBR1 (E3alpha). We consider these UBR1-like proteins and discuss the functions of the mammalian N-end rule pathway.